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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/845,844	04/30/2001	Robert E. Johnson	10004551-1	3208

7590 10/12/2005  
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EXAMINER

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ART UNIT PAPER NUMBER

2195

DATE MAILED: 10/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/845,844	<b>Applicant(s)</b> JOHNSON ET AL.	
	<b>Examiner</b> Majid A. Banankhah	<b>Art Unit</b> 2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 July 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### **Response to Amendment and Remarks**

This office action is in response to Applicant's amendment and response filed on July 27, 2005. Applicant's amendments, and supporting arguments have been fully considered, but they are deemed not to be persuasive. Claims 1-25 are presented for examination.

Applicant on page 6-7 of his remarks arguing that Monday does not describe transporting the defined data from the at least one host system to the storage management system via remote procedure call and the cited portion of Monday instead describes XML translation functions as evidenced by the Examiner's reference to XML translator 226. Applicant further arguing that Nowhere in the portions of Monday cited by Examiner is any reference made to remote procedure call.

In response, Examiner does not agree with this argument. First, claim 1 in line 3 recites "defining structure for data" and later in line 6 recites "the defined data". The "the defined data", lacks proper antecedent basis because in line 3, the "structure for data" is defined. Secondly, Examiner contend that the computer in the reference system (both Gao and/or Monday) is not prohibited from doing this act (i.e. defining data structure for transporting data), since the broad claim language appears to cover anything and everything that does not prohibit actions from occurring. At best the interpretation of a person ordinary skill in the art from this limitation is that markup language is used to transport data from a system to a storage system. This is taught by, Gao in, col. 5, Ins. 30, and in col. 3, Ins. 29-32, also col. 4, Ins. 45 (where he teaches of XML).

Applicant arguing that the cited portions of Monday does not describe "transporting the defined data from the at least one host system to the storage management system via a remote procedure call". In response, first the "defined" data is not described in the specification. The Examiner has conducted an electronic keyword search of applicant's entire specification and

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has found no support for "defined data". Therefore, it is interpreted as just "data", since any data being transported from one system to another has to be defined unless the intension is to transfer any random data. Secondly, Monday is used to show the use of remote procedure call using XML which is well known in the art at the time the invention was made (See Monday, col. 5, lns. 25-31, also, col. 6, lns. 32-45, where he teaches of RPC and cooperative processing).

On page 7 of his remarks applicant arguing that the portion of Monday cited by the Examiner do not refer to remote procedure calls, much less transporting the defined data from the at least one host system to storage management system via a remote procedure call. In response, it is submitted that applicant should read the references in its entirety. Monday explicitly teaches of RPC in a cooperative processing environment in col. 6, lns. 46-58.

On page referring to the examiner's motivation Applicant arguing that the cited portion of Monday does not teach motivation for transporting data and Monday's only reference to remote procedure call is to "engage in cooperative processing". In response, that portion of Monday in particular teaches of cooperative processing by means of transporting data. Monday teaches that: "one or more portions shown in main memory 120 may reside on another system and engage in cooperative processing", which is enough to show that data can be transported on main memory and vice versa, in order or create a cooperative processing environment for any reason including reducing storage load on one system and/or off loading from main memory or for example "storage management system" in the instant application.

On page 9 of the remarks applicant arguing that "By the Examiner's own admission in making the combination, Gao does not use the remote procedure calls, or RPCs. Since Gao does not

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use RPCs it would be of no benefit to allow Gao to "use different XML RPC format" as claimed by the Examiner.

In response first, Applicant totally misinterpret or perhaps misunderstood the combination of Gao and Humpleman's used by the Examiner in the obviousness rejection of the claims. In there, the reference of Humpleman is used to show the widely use of the remote procedure call. By definition **"a Remote procedure Call" allows a process on one system to call a procedure in another system. The calling process blocks pending the return from the called procedure on the remote system: then the calling process resumes execution from the point immediately following the call. The called procedure and the caller resides in separate process with separate address space so there is notion of shared global variables as is possible with regular procedures within a single process. Therefore RPC transfers information strictly through the parameters in the call"** [Operating Systems, Second Edition, by H.M. Deitel, pages 123-124]. Therefore, by using RPC in a system information (or "data" in the instant application) is transferred through the parameters in the call and this is well known in the art long before even 1990's (publication of the Deitel). Just this definition from Deitel would render the claimed invention obvious, because, it shows information and/or "data" is transferred thorough the parameter of the RPC from one location to another. However, in the rejection of the claims the examiner is relying on Gao to show the transfer (transporting) of data from one system to another using XML, and relies on Humpleman to show that RPC for transferring data which is well known in the art. In the instant case, Humpleman teaches not only the use of RPC but he suggest the use of different XML RPC format is beneficial since, one does not have to change other aspect of the device to device control architecture.

Applicant on page 9, arguing that, combination of Gao with Humpleman and Gao with Monday are improper for a lack of motivation as set forth in *In re Mills*.

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In response, there is no requirement that an "express, written motivation to combine must appear in prior art references before a finding of obviousness." See *Ruiz v. A.B. Chance Co.*, 357 F.3d 1270, 1276, 69 USPQ2d 1686, 1690 (Fed. Cir. 2004). For example, motivation to combine prior art references may exist in the nature of the problem to be solved (*Ruiz* at 1276, 69 USPQ2d at 1690) or the knowledge of one of ordinary skill in the art (*National Steel Car v. Canadian Pacific Railway Ltd.*, 357 F.3d 1319, 1338, 69 USPQ2d 1641, 1656 (Fed. Cir. 2004)). See MPEP § 2143.01 for a discussion of proper motivation to combine references.

On page 10 Applicant arguing that claim 19, as amended, requires remote procedure call means for transporting said obtained information from said means for further processing. At least this limitation is not shown in Gao. As Gao does not teach remote procedure calls, Gao cannot show a remote procedure call means for transporting said obtained information from said definition means for further processing, as required by claim 19. In response, as stated in the rejection of 19, in the present office action (*below, Section 5*) the reference of Wollrath et al. teaches of the use of RPC in col. 2 ln. 57 to col. 3, ln. 16.

On page 11, applicant arguing that, the Examiner has not pointed to any agent process to be operable to define device discovery information and transport the formatted discovery information to the storage management system via a remote procedure call. In response, once again by definition the remote procedure call transfers information strictly through parameters in the call. Hence, in an environment where data is transferred from one system to another system through RPC, the storage management information is passed by the parameters of the RPC and there is not other way. All the Examiner is trying to show is that, the use of RPC is well known in the art and a person ordinary skill in the art would understand to pass storage information through the

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parameters in the call. The reference of Humpleman is used to show RPC is known in the art and is taught in col. 15, Ins. 14-28.

Later on page 11, applicant arguing that Humpleman does not disclose at least one host agent process operable to define device discovery information in a markup language format and transport the formatted discovery information to the storage management system via a remote procedure call. In response Humpleman in col. 14, Ins. 53-68, and col. 15, Ins. 14-28 specifically teach of using XML remote procedure calls to control hardware or service of the control device 14. See also col. 16, Ins. 21-35, to see how XMLRPC messages are treated and how method name and parameters are passed through remote procedure call for retrieving information and data.

On page 12, Applicant arguing that there is no indication in Gao as to the need for a "definition and interface data type to create an XML document", and finally applicant conclude that, there is not motivation to combine Humpleman with Gao as required by *In re Mills*.

In response, this argument is not persuasive because, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In other words not only suggestion, or motivation to do so can be found in the references themselves but also the motivation to do so can be found in the knowledge available to one ordinary skill in the art. Therefore, the conclusions of obviousness may be made from common knowledge and common sense without any specific hint or suggestion in a particular

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reference. **In re Bozek**, 416 F.2d 1385, 163 USPQ 545 (CCPA 1969).

Additionally, every reference relies to some extent on knowledge of persons skilled in the art to complement that which is disclosed therein. **In re Bode**, 550 F.2d 656, 193 USPQ 12 (CCPA 1977).

The test for combining references is not what the individual references themselves suggest but rather what the combination of the disclosures taken as a whole would suggest to one of ordinary skill in the art. **In re McLaughlin**, 170 USPQ 209 (CCPA 1971). A reference is to be considered not only for what it expressly states, but also for what it would reasonably have suggested to one of ordinary skill in the art. **In re DeLisle**, 160 USPQ 806 (CCPA 1969).

### **35 U.S.C. 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gao** (U.S. Patent 6,581,094) in view of **Monday et al.** (U.S. Patent 6,480,860).

#### **As per independent claim 1:**

**Gao** discloses the invention substantially as claimed:

**Gao** discloses a method for the communication of data between at least one host system and a storage management system, the method comprising:

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- defining structure [col. 5, line 30] for data related to each of the at least one host systems to be transported from the at least one host system to the storage management system using a markup language [e.g., see "The memory 72 also stores Universal Device Descriptor (UDD) files 76. The UDD files 76 may include a UDD file for the server 60 and UDD files for other digital devices within the networked environment 20" and associated discussion, col. 3, beginning line 29; see also col. 4, beginning line 45: "The present invention uses XML syntax to support new functionality. The XML syntax of the invention forms the previously described Unified Device Descriptor UDD. The invention is disclosed as an application of XML in which a Unified Device Descriptor (UDD) is used to specify digital devices. Each digital device has a unique UDD dedicated to it, which describes parameters, such as device characteristics, capabilities, features, status, geographic information, maintenance record, job billing information, support/administration information, and the like. Using Document Type Definition (DTD), the invention precisely defines the logical structure of a UDD, so that each manufacture or device administrator will fill the contents for its devices. One of the major benefits of using a DTD in XML that it makes each UDD precisely searchable using standard Internet searching technologies."]; and
- maintaining the data related to each of the at least one host systems at the storage management system [e.g., see Memory 72 as described col. 3, line 29 and as shown as part of server computer 60, fig. 1, col. 3, see discussion beginning line 12].

However, **Gao** does not *explicitly* teach the following additional limitations:

"Transporting said defined data from said at least one host system to said storage management system via a remote procedure call"

**Monday** teaches transporting the defined data from the at least one host system to the storage management system via a remote procedure call [**Monday** teaches the use of remote procedure calls using XML, col. 5, line 58, see also col. 5, lines 25-31; see also col. 7, lines 21-67, col. 8, lines 29-46; see also retrieving data from the database and subsequent translation step and

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associated discussion col. 8, lines 29-46, specifically "XML translator 226"].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve upon the system taught by **Gao** by implementing the improvements detailed above because it would provide **Gao's** system with the enhanced capability of reducing the server load and increasing programmer control over "how XML requests are processed and returned" [see **Monday**, col. 8, lines 39-46].

**As per dependent claim 2:**

**Gao** teaches the markup language includes a facility to define tags, as well as structural relationships between tags [e.g., see **Gao's** use of XML and associated discussion, beginning col. 4, line 15].

**Monday** teaches the markup language includes a facility to define tags, as well as structural relationships between tags [e.g., see sample XML data request and associated XML tags, as shown in figures 6-8; see supporting discussion col. 9].

**As per dependent claim 3:**

**Gao** teaches the markup language is extensive markup language (XML) [col. 4, line 15].

**Monday** teaches the markup language is extensive markup language (XML) [col. 5, line 4].

**As per dependent claim 4:**

**Monday** is silent regarding any operating system dependency with respect to the use of a RPC between machines; therefore, the Examiner has interpreted the breadth of **Monday's** disclosure

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as not being limited to any particular operating system [see RPC disclosure, col. 6, line 58].

2. Claims 1- 4, 7, 8, 11-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gao** (U.S. Patent 6,581,094) in view of **Humpleman et al.** (U.S. Patent 6,466,971).

**As per independent claim 1:**

**Gao** discloses the invention substantially as claimed:

**Gao** discloses a method for the communication of data between at least one host system and a storage management system, the method comprising:

- defining structure [col. 5, line 30] for data related to each of the at least one host systems to be transported from the at least one host system to the storage management system using a markup language [e.g., see "The memory 72 also stores Universal Device Descriptor (UDD) files 76. The UDD files 76 may include a UDD file for the server 60 and UDD files for other digital devices within the networked environment 20" and associated discussion, col. 3, beginning line 29; see also col. 4, beginning line 45: "The present invention uses XML syntax to support new functionality. The XML syntax of the invention forms the previously described Unified Device Descriptor UDD. The invention is disclosed as an application of XML in which a Unified Device Descriptor (UDD) is used to specify digital devices. Each digital device has a unique UDD dedicated to it, which describes parameters, such as device characteristics, capabilities, features, status, geographic information, maintenance record, job billing information, support/administration information, and the like. Using Document Type Definition (DTD), the invention precisely defines the logical structure of a UDD, so that each manufacture or device administrator will fill the contents for its devices. One of the major benefits of using a DTD in XML that it makes each UDD precisely searchable using standard Internet searching technologies."]; and
- maintaining the data related to each of the at least one host systems at the storage management system [e.g., see Memory 72 as described col. 3, line 29 and as shown as part of server computer 60, fig. 1, col. 3, see discussion beginning line 12].

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However, **Gao** does not *explicitly* teach the following additional limitations:

**Humpleman** teaches transporting the defined data from the at least one host system to the storage management system via a remote procedure call [e.g., see XMLRPC format discussion beginning col. 18, line 65; see also use of XML, col. 12, discussion beginning line 6; see also use of "XML. Remote Procedure Call", col. 14, line 17; also RPC using XML discussion col. 18, beginning line 45; see also XML RPC code listing, EXAMPLE 1, col. 19; see also XMLRPC format discussion beginning col. 18, line 65].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve upon the system taught by **Gao** by implementing the improvements detailed above because it would provide **Gao's** system with the enhanced capability of **"allowing the use of different XML RPC formats without changing other aspects of the device to device control architecture"** [**Humpleman**, col. 16, lines 30-35].

**As per dependent claim 2:**

**Gao**, as modified by **Humpleman**, teaches the markup language includes a facility to define tags, as well as structural relationships between tags [e.g., see **Humpleman** XML RPC code listing, EXAMPLE 1, col. 19 and associated XML tags; see also **Gao** XML discussion, col. 4, beginning line 15].

**As per dependent claim 3:**

**Gao**, as modified by **Humpleman**, teaches the markup language is extensive markup language (XML) [e.g., see **Humpleman** use of XML, see col. 12, discussion beginning line 6 see also **Gao** XML discussion, col. 4, beginning line 15].

**As per dependent claim 4:**

**Humpleman** is silent regarding any operating system dependency with respect to the use of a RPC between machines; therefore, the Examiner has interpreted the breadth of **Humpleman's** disclosure as not being limited to any particular operating system [see **Humpleman** XML RPC code listing, col. 19].

**As per dependent claim 7:**

**Gao**, as modified by **Humpleman**, teaches the defining is performed by at least one host agent residing on the at least one host system [e.g., see **Humpleman** "software agent" and associated discussion col. 13, lines 12-20 and col. 13, lines 51-53].

**As per dependent claim 8:**

**Gao**, as modified by **Humpleman**, teaches the transporting is facilitated by the at least one host agent [e.g., see **Humpleman** "agent" discussion col. 13, beginning line 12].

**As per dependent claim 11:**

**Gao**, as modified by **Humpleman**, teaches processing the defined data at the storage management system [e.g., see **Humpleman** "local device XML interface" and associated discussion col. 16, beginning line 13; also col. 18, lines 40-52; see also **Gao** XML discussion, col. 4, beginning line 15].

**As per dependent claim 12:**

**Gao**, as modified by **Humpleman**, teaches the processing includes parsing the defined data using a markup language [see **Humpleman** "parsing and validating XML messages", and associated discussion col. 16, lines 21-35; also col. 18, lines 40-52; see also **Gao** XML discussion, col. 4, beginning line 15].

**As per dependent claim 13:**

**Gao**, as modified by **Humpleman**, teaches the parsing which is performed by a standard extensive markup language (XML) parser [see **Humpleman** "XML parser 74" and associated discussion col. 16, lines 24; see also XML parser discussion col. 18, lines 40-52; see also **Gao** XML discussion, col. 4, beginning line 15].

**As per dependent claim 14:**

**Gao**, as modified by **Humpleman**, teaches the processing includes providing the defined data to a flexible interface of the storage management system [e.g., see **Humpleman** "local device XML interface" and associated discussion col. 16, beginning line 13; see also **Gao** XML discussion, col. 4, beginning line 15].

**As per dependent claims 15 - 17:**

**Gao**, as modified by **Humpleman**, teaches the use of an XML parser which appears to inherently offer standard XML parsing capabilities as claimed [see **Humpleman** "XML parser 74" and associated discussion col. 16, lines 24; see also XML parser discussion col. 18, lines 40-52; see "local device XML interface" and associated discussion col. 16, beginning line 13; see also **Gao** XML discussion, col. 4, beginning line 15].

**As per dependent claim 18:**

**Gao**, as modified by **Humpleman**, teaches the transporting occurs in response to a request from the storage management system, the request being made after the storage management system determines a change in device information has occurred since a prior transmission of data to the storage management system [e.g., see **Humpleman** "local device XML interface" and associated discussion col. 16, beginning line 13; see also **Gao** XML discussion, col. 4, beginning line 15].

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3. Claims 5 & 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gao** (U.S. Patent 6,581,094) in view of **Humpleman et al.** (U.S. Patent 6,466,971) in view of (U.S. Patent ), and further in view of **Wollrath et al.** (U.S. Patent 6,487,607).

**As per dependent claim 5:**

**Gao & Humpleman** discloses the invention substantially as claimed, as discussed above.

However, **Gao & Humpleman** do not *explicitly* teach the following additional limitations:

**Wollrath** teaches the use of JAVA remote method invocation, as claimed [e.g., see col. 4, line 20 and associated discussion].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve upon the system taught by **Gao & Humpleman** by implementing the improvements detailed above because it would provide the system taught by **Gao & Humpleman** with the enhanced capability of avoiding the blocking of a calling process while it waits for a response from the called remote procedure, as typically occurs with synchronous remote procedure calls, and/or for transporting objects within the distributed system for use in connection with processes executing on remote machines [e.g., see **Wollrath** col. 4, discussion beginning line 35; see also col. 3, lines 9-15].

**As per dependent claim 6:**

**Humpleman** teaches the defined device data is device discovery data [e.g., see examining device capabilities col. 14, lines 39-52; see also the use of XML to represent CD devices, col. 20, line 55].

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4. Claims 9 & 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gao** (U.S. Patent 6,581,094) in view of **Humpleman et al.** (U.S. Patent 6,466,971), and further in view of (U.S. Patent ) in view of **Monday et al.** (U.S. Patent 6,480,860).

**As per dependent claim 9:**

**Gao & Humpleman** discloses the invention substantially as claimed, as discussed above.

However, **Gao & Humpleman** do not *explicitly* teach the following additional limitations:

**Monday** teaches retrieving the data to be transported to the storage management system from at least one storage device embedded in or communicatively coupled to the at least one host system prior to defining the structure of the data to be transported [e.g., see retrieving data from the database and subsequent translation step and associated discussion col. 8 lines 29-46, specifically "XML translator 226"] .

It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve upon the system taught by **Gao & Humpleman** by implementing the improvements detailed above because it would provide the system taught by **Gao & Humpleman** with the enhanced capability of reducing the server load and increasing programmer control over "how XML requests are processed and returned" [See **Monday**, col. 8, lines 39-46].

**As per dependent claim 10:**

**Humpleman** teaches the retrieving is performed by at least one host agent residing on the at least one host system [e.g., see "agent" and associated discussion col. 13, beginning at lines 12 & 51].

5. Claims 19-22 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Gao** (U.S. Patent 6,581,094) in view of **Wollrath et al.** (U.S. Patent 6,487,607).

**As per independent claim 19:**

**Gao** teaches a system for the monitoring and management of storage-related devices of an enterprise environment, the system comprising:

- means for obtaining discovery information from at least one physical storage-related device of the enterprise environment [e.g., see col. 5, lines 1-21: " The invention can be appreciated by envisioning a digital device's installation, discovery, connection, use, and management in the Internet environment in the way that the data has been published: device installation and configuration=data modeling; device registration=data publishing; device discovery=data searching; device connect=data access; device use=data access interactively; and device status=data query/data pushing/data interchange. Each device's UDD may be stored in the device itself. Alternately, the UDDs can be consolidated into a central server which serves the device. The system administrator can register the UDDs into the default search engine or some major search engine which is XML enabled. The UDD acts as a focal point between the digital device and a network administrator. Once a user locates a device's UDD, a variety of actions can be taken to interact with this UDD. The system administrator may interact with the UDD to perform administration tasks via the system administration applications 52. Device manufacturers can interact with the UDD to do troubleshooting and maintenance tasks via the device vendor applications 54." ];
- means for defining structure of the obtained information using a markup language [e.g., see col. 3, beginning line 45: " The present invention uses XML syntax to support new functionality. The XML syntax of the invention forms the previously described Unified Device Descriptor UDD. The invention is disclosed as an application of XML in which a Unified Device Descriptor (UDD) is used to specify digital devices. Each digital device has a unique UDD dedicated to it, which describes parameters, such as device characteristics, capabilities, features, status, geographic information, maintenance record, job billing information, support/administration information,

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and the like. Using Document Type Definition (DTD), the invention precisely defines the logical structure of a UDD, so that each manufacture or device administrator will fill the contents for its devices. One of the major benefits of using a DTD in XML that it makes each UDD precisely searchable using standard Internet searching technologies. In contrast, with current HTML based search technologies, a search results in a large amount of returned information that is irrelevant or false. Thus, the invention facilitates the operation of using a web browser to identify digital devices. The Internet based technique of the invention also facilitates cross-platform functionality. Thus, digital devices using different operating systems and connectivity schemes can still communicate."]; and

- means for transporting the obtained information from the defining means for further processing [e.g., see col. 5, beginning line 22: "Executable modules 78 in the form of Java applets or any other appropriate scripts can be embedded into the UDD to perform various information exchange, status monitoring, and format conversion operations. For example, the Java applets may be implemented to perform individual and specific tasks such as, status monitoring, job spooling, and error handling."]].

However, **Gao** does not *explicitly* teach the following additional limitations:

**Wollrath** teaches the means for transporting includes the use of remote procedure call and JAVA remote method invocation, as claimed [e.g., see col. 2, ln. 2, to col. 3, ln. 16, and col. 4, line 20 and associated discussion].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve upon the system taught by **Gao** by implementing the improvements detailed above because it would provide the **Gao's** system with the enhanced capability of avoiding the blocking of a calling process while it waits for a response from the called remote procedure, as typically occurs with synchronous remote procedure calls, and/or for transporting objects within the distributed system for use in connection with processes executing on remote machines [e.g., see **Wollrath** col. 4, discussion beginning line 35; see also col. 3, lines 9-15].

**As per dependent claim 20:**

**Gao** teaches the markup language is extensive markup language (XML) [e.g., see "XML" discussion, beginning col. 4, line 15].

**As per dependent claim 21:**

**Gao** discloses the invention substantially as claimed, as discussed above.

However, **Gao** does not *explicitly* teach the following additional limitations:

**Wollrath** teaches the means for transporting includes the use of JAVA remote method invocation, as claimed [e.g., see col. 4, line 20 and associated discussion].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve upon the system taught by **Gao** by implementing the improvements detailed above because it would provide the **Gao's** system with the enhanced capability of avoiding the blocking of a calling process while it waits for a response from the called remote procedure, as typically occurs with synchronous remote procedure calls, and/or for transporting objects within the distributed system for use in connection with processes executing on remote machines [e.g., see **Wollrath** col. 4, discussion beginning line 35; see also col. 3, lines 9-15].

**As per dependent claim 22:**

**Gao** teaches the further processing includes a processing means flexible to differences between an interface of the defining means and an interface of the processing means [e.g., see "set of novel executable programs" and associated discussion, beginning col. 2, line 61].

6. Claims 23 & 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gao** (U.S. Patent 6,581,094) in view of **Humpleman et al.** (U.S. Patent 6,466,971).

**As per independent claim 23:**

**Gao** discloses the invention substantially as claimed:

**Gao** teaches a system for the monitoring and management of storage-related devices of an enterprise environment, the system comprising:

- at least one host system [e.g., see "supervisory computer 40" and associated discussion, beginning col. 2, line 53],
- a storage management system, wherein the storage management system is communicatively coupled to the at least one host system through a flexible interface, wherein at least one of the at least one host agent process is operable to define device discovery information in a markup language format and transport the formatted discovery information to the storage management system via a remote procedure call [e.g., see col. 5, lines 1-21: " The invention can be appreciated by envisioning a digital device's installation, **discovery**, connection, use, and management in the Internet environment in the way that the data has been published: device installation and configuration=data modeling; device registration=data publishing; device discovery=data searching; device connect=data access; device use=data access interactively; and device status=data query/data pushing/data interchange. Each device's UDD may be stored in the device itself. Alternately, the UDDs can be consolidated into a central server which serves the device. The system administrator can register the UDDs into the default search engine or some major search engine which is XML enabled. The UDD acts as a focal point between the digital device and a network administrator. Once a user locates a device's UDD, a variety of actions can be taken to interact with this UDD. The system administrator may interact with the UDD to perform administration tasks via the system administration applications 52. Device manufacturers can interact with the UDD to do troubleshooting and maintenance tasks via the device vendor applications 54." ];

However, **Gao** does not explicitly disclose the following additional limitations:

**Humpleman** teaches at least one host agent process, wherein each of the at least one host agent process resides on a respective host system of the at least one host system [e.g., see **Humpleman** "software agent" and associated discussion col. 13, lines 12-20 and col. 13, lines 51-53].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve upon the system taught by **Gao** by implementing the improvements detailed above because it would provide **Gao's** system with the enhanced capability of using a definition and interface data type to create an XML document [**Humpleman**, col. 13, lines 12-20; lines 51-63].

**As per dependent claim 24:**

**Gao** teaches the markup language format is an extensive markup language XML format [e.g., see "XML" discussion, beginning col. 4, line 15; **Humpleman** teaches the use of XML to implement a Remote Procedure Call, col. 16, discussion beginning line 31].

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8. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Gao** (U.S. Patent 6,581,094) in view of **Humpleman et al.** (U.S. Patent 6,466,971), and further in view of **Wollrath et al.** (U.S. Patent 6,487,607).

**As per dependent claim 25:**

**Gao**, as modified by **Humpleman**, discloses the invention substantially as claimed, as discussed above.

However, **Gao & Humpleman** do not *explicitly* teach the following additional limitations:

**Wollrath** teaches the remote procedure call is Java Remote Method Invocation (RMI), as claimed [e.g., see col. 4, line 20 and associated discussion].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to improve upon the system taught by **Gao & Humpleman** by implementing the improvements detailed above because it would provide the system taught by **Gao & Humpleman** with the enhanced capability of avoiding the blocking of a calling process while it waits for a response from the called remote procedure, as typically occurs with synchronous remote procedure calls, and/or for transporting objects within the distributed system for use in connection with processes executing on remote machines [e.g., see **Wollrath** col. 4, discussion beginning line 35; see also col. 3, lines 9-15].

**How to Contact the Examiner:**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Majid Banankhah, whose telephone number is 571-272-3770. A voice mail service is also available at this

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number. The Examiner can normally be reached on Monday - Friday, except Tuesdays from 7:00 AM - 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, An Meng-AI who can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**All responses sent by U.S. Mail should be mailed to:**

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

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**PTO CENTRAL FAX NUMBER:  
703-872-9306**

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- Any inquiry of a general nature or relating to the status of this application should be directed to the **TC 2100 Group receptionist: (571) 272-2100.**

MAJID BANANKHAH  
PRIMARY EXAMINER

